GRUMMAN plane news

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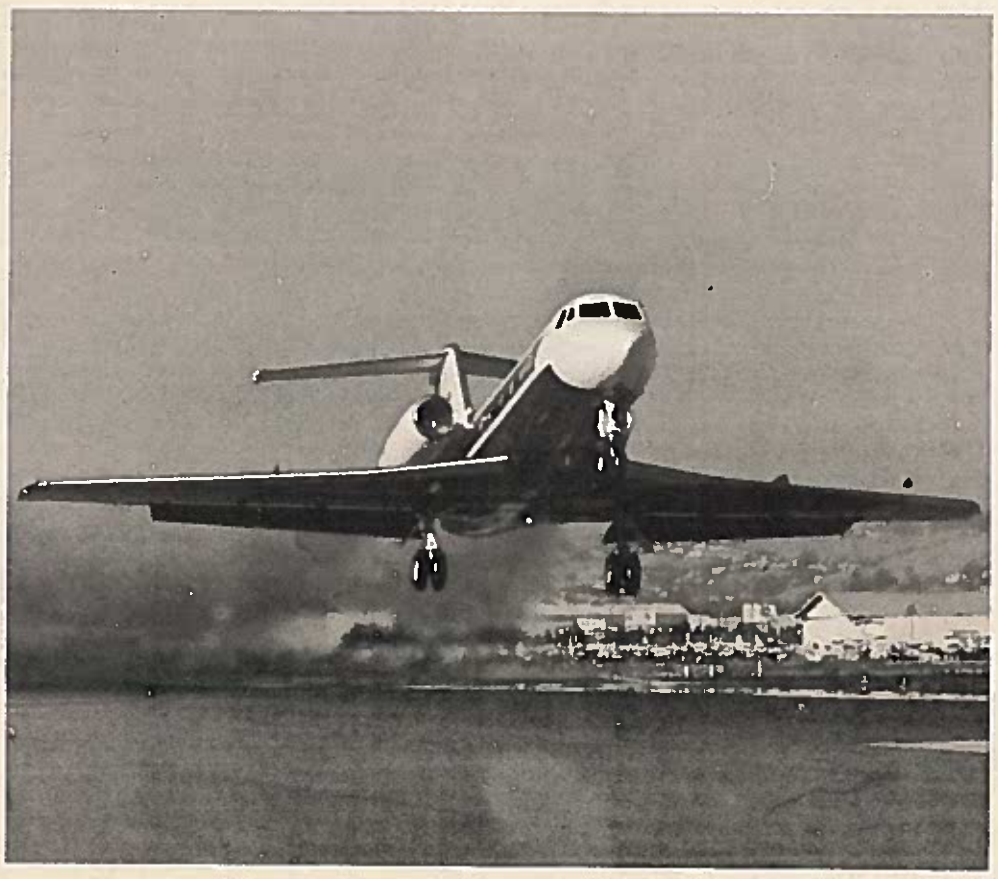
See NASA Space Shuttle as the 'next logical step' . . .

Man's walk on the moon—the big, dramatic event that has changed the face of the world—has come and gone; and having had astronauts physically step on to the moon, the National Aeronautics and Space Administration was faced with the next logical step: Which way to go now? And NASA's answer: the Space Shuttle. For more than two-and-a-half years, the Grumman space team has been working feverishly, studying and evaluating a host of alternative configurations for the Space Shuttle—which could well be **the** most economical and fruitful near-space transportation system for the 1980s and '90s. What the Shuttle means, what the aims are, and what the benefits are likely to be, are partially discussed in this issue of Plane News (page 3) by Senior Vice President Joe Gavin, shown examining a model of the Shuttle. This is the first of a series of articles dealing with the Space Shuttle and its place in the nation's near-space transportation system.



. . . as Gulfstream rides high in business jet market

The motion is smooth, powerful, upward. Like the birds of nature, there is a grace and smoothness—a thrust that's seemingly effortless — as the Gulfstream II plies the world's skyways, making friends as it goes. And it's going up . . . as are sales. If there is anything so geometric in space as a corner, then G II has turned that corner, and the outlook is once again brighter as the business slump appears lighter, and things are on the mend.

Not that G II was in need of mending. Quite the opposite. It's the Lady of the corporate aircraft world, and has been its acknowledged Queen for years. It's no surprise: That's the way it was built. Comfort, reliability, speed, range, maintainability, durability, plus an amazing adaptability that includes forays in the military and research worlds. See it on page 12.

Snyder appointed to direct Development Test Operations

If he hadn't been a high-school dropout, it's not likely that Jack Snyder would be at Grumman today as director of Engineering Development Test Operations. It may sound implausible, but it's probably true.

After Jack returned to his native Oklahoma City from Army service in 1946 (he had left high school to enlist in World War II), he thought he had his first job as a mobile X-ray technician all locked up—until fate stepped in. He was turned down at the last minute because he wasn't a high school graduate.

That prompted Jack to return to high school where he "sat in with the kids" and worked nights in a local aircraft company until he had enough credits for his diploma. But he didn't stop there; he went on to Oklahoma A&M and earned his degree in mechanical engineering, too.

It proved to be his passport to a new and exciting career, one that has included a stint as a high-speed driver/test engineer at the GM proving grounds, a test engineer's close-up view of many of the early missile and spacecraft launches at Cape Canaveral, and, until recently, a key management role on the LM launch team during many successful Apollo flights.

Now, according to an announcement by Vice President George Skurla, Snyder is "responsible for all Engineering Developmental ground testing of our spacecraft, aircraft, and other product lines, prior to customer and/or flight acceptance testing."

Jack Snyder

Testing a serious business

Extensive experience

You could say Jack took a roundabout journey to get to Grumman. Starting with Pontiac Motors in 1951 as a test engineer, he went on to Kaiser at Willow Run two years later as engineering assistant (he left as a general foreman of final assembly, pre-flight, and engine run when the C-119 line ran out), then went south to Dallas ("my second home") to join Chance Vought in flight test project engineering. After working with the Corsair, Cutlass, and Crusader, Snyder was a test project engineer at Point Mugu on the Regulus missile when a Government decision in 1957 cancelled the contract.

It was a chance to move a couple of hundred miles up the coast to Sacramento and Aerojet General, and a spot as a lead engineer in test operations. After a year at Sacramento he was transferred to Cape Canaveral. During his 15 years there he got his baptism in rocketry and valuable experience in the site activation, test, assembly, and launching of Vanguard, Polaris, Titan, Minuteman, and Apollo (he went to sea aboard an atomic sub for undersea launchings of Polaris). In late '63, Snyder joined the Martin Company at the Cape as a fluid mechanical systems project engineer; later he became involved, as launch test readiness engineer, in all phases of launch operations.

Jack joined George Skurla's LM team at KSC in 1966. While with Grumman he has served in a number of posts, including activation project engineer, launch complex manager (Complex 37), chief of Launch Complexes and Facilities, KSC, and, for a brief spell, director of operations at Houston for the critical LTA-8 manned vacuum-chamber tests before returning to KSC as assistant to the director of Support Operations.

Active in F-14 tests

Since May of 1970, Snyder has been back at Bethpage on George Skurla's staff. Most recently he has been heading all test activities (excluding flight testing) on the F-14 program. Jack is looking ahead now to preparing stringent engineering test/operations policies for the Space Shuttle, and other Grumman product lines.

Although he's traveled to practically every section of the nation over the past 20 years, there's still a hint of nasal twang that gives evidence of his southwestern upbringing. And don't let the "mod" dress fool you; that lively twinkle can quickly become more like a hard glitter when Snyder starts discussing test operations. That's always serious business to him.

His own words best describe this sober view: "When you're involved in manned spacecraft and aircraft testing, where a mistake can bring sudden and violent death, there can be no room for error. You have to have team discipline. Nothing else can, or will be, tolerated," he added with a set smile. Folks, meet Jack Snyder.

Short shots . . .

Dr. James Fletcher, administrator of the National Aeronautics and Space Adminstration, named Sigurd Sjoberg as deputy director of the Manned Spacecraft Center at Houston. Sjoberg succeeds Dr. Chris Craft, who has been promoted to director of MSC.

Gerry Kaufhold, who heads the Grumman office at Dayton, Ohio, has been honored as the Ohio Air Force Association's "Man of the Year." Kaufhold is president of the Dayton chapter of the AFA, and at a recent AFA meeting, was also elected area vice president by the parent group.

Announce increase in benefits

The group insurance plan covering Grumman employees acquired a new and better look January 1, 1972. Grumman Corporation President Lew Evans announced an extension to Out-Patient Benefits in these two respects:

• Time-limit stretched. Where formerly you or a member of the family had a minor, non-hospital confinement type of accident and went to the hospital or a doctor's office for some treatment—an X-ray, for example—the Company insurance would pay your medical bills up to a maximum of $100, if incurred within 24 hours of the accident. **Now you have more time: 72 hours instead of 24.** This will allow, realistically, for such time gaps as trying to reach a doctor over the weekend and not being able to find one right away.

• The Out-Patient Benefit pays over a six-week period. This is also new. Out-Patient Benefit will pay for non-hospital confined aftercare over a six-week period following the first treatment. The allowance remains $100 maximum. Example: you cut yourself and decide that the cut probably should have stitches. The doctor agrees to sew you up and does so within 72 hours of the accident. He says to come back in two weeks to have the stitches removed. Payment of the doctor's fees will be made by Grumman insurance. If other medical bills for the same accident are incurred during the six weeks following the accident, they will be picked up by the insurance company to a maximum of $100 over the period.

These benefits are not payable if you or your dependent is confined to a hospital; you would then be eligible for the hospital care described in your group insurance brochure.

Note to parents on insurance

Employees whose children became 19 years of age after February 1, 1971, are reminded that health insurance expires for these children on January 31, 1972, according to a notice from Insurance, Benefits & Records, Plant 28.

Transfer to one of several plans of individual health insurance on a direct payment basis is available. Applications and rate information are available from plant Employee Services offices and the Insurance office in Plant 28.

Dependent children who are incapable of self-support due to mental or physical handicap continue to be covered by the Grumman Medical Plan beyond age 19.

Merger of GDS subsidiary

Grumman Data Systems informed its stockholders on January 3 of its decision to mold the structure of North American Computer and Communications Company and its subordinate corporations into a more efficient and workable form by merging the operating subsidiary, Computility, Inc., into the parent organization. The name of the surviving organization was changed from North American Computer and Communications Company to Computility, Inc., since the good will generated with customers and the public at large is associated with that name. According to Jim Conners, President of the subsidiary of GDS, the merger, besides streamlining the operation by elimination of an unnecessary corporate tier, will reduce the costs of administration by doing away with duplicative fees and filings.

Gabe Grenci of the Contracts Department must have trouble keeping his feet on the ground—or his head out of the clouds. Neither sleet nor hail (or anything else for that matter) has kept Gabe from his appointed flight rounds: pursuing expeditious conveyance of high-priority contractual documents and proposals with Grumman customers. Recently, Gabe completed his 1000th flight on Company business—and he's already got a start on that second thousand in his log book.

KSC to Tallahassee. **Grumman director of Operations at KSC, Chuck Kroupa (R) and Bob Watkins journeyed to Tallahassee recently to visit with Florida Gov. Reuben Askew and present him with models of the Lunar Module and the Gulfstream I.**

Reaching out: See Space Shuttle 'next logical step'

"We live in the simplest times in the history of man. All men face the same challenge, on the same frontier, at the same time, from the same place. The challenge is survival. The place is Earth. Here lies the basis of union—the survival of the race of man, this minority of one, on a speck of dust, circling a minor star in a minor galaxy in a universe broader than our awareness."

—Earl Hubbard

Early this January, President Richard Nixon committed the United States to "the development of an entirely new type of space transportation system designed to help transform the space frontier of the 1970s into familiar territory, easily accessible for human endeavor in the 1980s and '90s.

"This system will center on a space vehicle that can shuttle repeatedly from earth to orbit and back. It will revolutionize transportation into near space, by routinizing it. It will take the astronomical costs out of astronautics. In short, it will go a long way toward delivering the rich benefits of practical space utilization and the valuable spinoffs from space efforts into the daily lives of Americans and all people."

To those who have long been involved in space exploration—to people like Senior Vice President Joe Gavin, who has been on top of Grumman's space efforts — President Nixon's announcement represents a major milestone in the post-Apollo program. The ultimate results lie too far in the future for definitive judgment; but if only the past decade of history is taken into account, it's fair to expect another great shower of technological advances that will benefit mankind.

Sees need for action

In that vein, Gavin recently remarked that "We tend to forget very quickly what's been accomplished. I recall some heated debates about whether man could exist in a weightless state. We now take this and a lot more for granted. We forget about the manned missions—Mercury, Gemini, and Apollo. We forget unmanned satellites, like the weather, scientific, and communications satellites. Yet soon we'll be watching the Olympics —live — from Japan, and without a second thought."

Of course, as Gavin says, we didn't know back in the late '50s that all this would occur. No one could have predicted it. But Gavin observes that "if we hadn't moved, just because we didn't know what the results would be, we would never have moved."

Matters are much different now than they were in '59 and through the early '60s. The National Aeronautics and Space Administration (NASA) has had the time to make an exceedingly thorough study of what to do next after the manned landings on the moon. The problems were better understood and no new inventions were needed, so, as Gavin says, "It was determined that the Space Shuttle was the basic component of any new space undertaking. That was the key to the development of new space transportation systems that could accomplish a variety of goals for the future, such as launching probes or repairing satellites."

Critical project

Among the others who saw how critical a Space Shuttle would be was Sen. Clinton P. Anderson, chairman of the Senate space committee:

"Without a shuttle . . . I do not believe we can afford to capitalize effectively on our scientific opportunities in space. Such major missions become too expensive. Nor can we capitalize effectively on our scientific and technological investments that already have given us space communications, weather satellites and geodetic programs. The commercial and social benefits of the next generation of space applications—contributing to such fields as natural resources management, pollution monitoring, weather modification and climate control, television distribution, earthquake prediction and avoidance, education, public health and safety, to name a few—will not be fully realized unless we get costs down, efficiency up, and introduce a flexibility of action not earlier thought possible. That, of course, is what the space shuttle is for, and why without it we will lose a program of promise and value."

On the issue of costs a lot **must** be said. Despite the loud moans from some (one senator has called the Shuttle a "senseless extravaganza in space"), development costs for the Shuttle, expressed in current dollars and covering six years, estimated at $5.5 billion, add up to one-fourth the cost of the Apollo program. There's another revealing piece of information: If 1970's GNP (Gross National Product) were divided into expenditure categories, the space chunk would represent just one-third of one percent of our earned dollar! If, figuratively, you dropped that into the sea of the Federal budget, you wouldn't see a ripple.

So, in terms of the call to "re-order our priorities," it has already been done as far as the space effort is concerned.

Moreover, as Gavin points out, there has been a classic misunderstanding of what happens to money spent on the space program: "The program doesn't fire money off the space pad. That money is spent on the ground. And probably for each person in the program it supports about two-and-a-half others outside."

Of greater importance, both in the short term and long term, is what a vehicle such as the Space Shuttle could do. One big thing is that it could lower costs phenomenally because the orbiter could launch scientific satellites and, when necessary, permit technicians to repair them in space—thereby avoiding the higher cost of launching entirely new substitute systems. Then, too, what are other likely benefits, such as those mentioned by Senator Anderson? Some now apparent ones include:

- An expanded network of communications satellites, featuring educational TV beamed to developing nations
- Advanced oceanography to identify and minimize pollution
- Worldwide crop surveillance, detection of agricultural pests
- Closer international cooperation (Work is already under way to standardize U.S.-Soviet space docking procedures)
- Stimulation of already substantial spinoff efforts, including many innovations in medical techniques
- Manufacturing in space, making use of zero gravity and the natural hard vacuum
- Use of military payloads in space for national defense
- Repair, servicing, refurbishment, and reuse of automated satellites
- Use of space by industries

All of these, and many other tasks, beyond current definition, will be (in Sen. Howard Cannon's words) "of great benefit to mankind on this overcrowded planet."

The point is, we have the technology to do just about whatever is needed. **It's here, right now.**

And there are new worlds to conquer. One huge one that Gavin mentioned is solar energy. "How can you collect it and use it, not only on the ground but also in earth orbit?" he inquired. "How can we get a better understanding of the world's—the universe's—energy processes?" The Shuttle, he said, could be helpful there, too.

Helpful for economy

It will be particularly helpful economically: It's expected that the Space Shuttle, because it's reusable and not thrown away, will dramatically lower the cost of putting payloads into space. Perhaps the cut will be as much as $1,000 or $700 to $100 per pound. Or perhaps a better measuring rod, suggests Gavin, would be "lower cost per flight. I look at it that way because we may want to launch something that's big but relatively light in weight. Then cost per pound would be a poorer measure than cost per flight. We'd have to strike a balance between cost of construction and cost per flight."

Minimizes cost

Either way, however, a Shuttle system minimizes costs. Only four or five of them would be needed, and, as President Nixon has said, each "new system will be recovered and used again and again—up to 100 times. The resulting economies may bring operating costs down as low as one-tenth of those for present launch vehicles." (In addition, remarks Gavin, "The Shuttle is **not** at all like the supersonic transport, or SST. The type of vehicle and the number of them—four or five—will not involve pollution of the atmosphere. We'll be able to plan for something useful over a long period of time . . . and it will be relatively low-rate transportation.")

And as Gavin leaned back he tossed out other ideas worth thinking about: In time, there may be a network of

(Continued on page 9)

Johnson gets 'luck of draw;' wins color TV, top Fund prize

The suspense was over; it was prize picking time and the United Fund winners—except the four who were out of town—met in the dining room in Plant 35 to choose their awards.

First-place winner Phil Johnson of Product Support was not at the drawing when President Bill Zarkowsky drew his stub on the previous day. When notified that he was a winner, Phil was completely overwhelmed. "I've been contributing to the United Fund ever since I came to Grumman four years ago. I feel there are people who are much worse off than I am, and if my contribution can help them, well, good."

That seemed to be the general consensus: contributing to the United Fund is a necessary thing and doing it through payroll deduction makes it very convenient and "you don't feel it as much." Some of the winners have been contributing since United Fund came into existence. One man remembers when the drawings were held at Roosevelt Raceway, and he recalled that one year the prize was a house.

Second-place prize winner, Vincent Falcone of Instrumentation Engineering, does his share, too. He contributes to United Fund because "It's a good way to help everyone. Many people give to their favorite charities and forget the rest. Through the United Fund you reach everybody."

Twelfth-place prize winner, Terry Woods, brought along her husband Jim for moral support. They both contribute to the United Fund. "Why shouldn't we," said Terry. "With two people working we feel we should both do our share." It was a special day for the Woods. After choosing a color TV for her prize, Terry left with her husband for the pin presentation at Plant 5, Terry to receive her 10-year pin, and Jim his 5-year pin.

United Fund prize winners

1. **Philip Johnson,** Product Support Cust. Orders & Rec., Plant 30 - Magnavox 25 inch color TV combination with 1 year service.

2. **Vincent Falcone,** Instrumentation Engineering, Plant 14 - G.E. 24-cubic-foot refrigerator with ice maker and crusher.

3. **William Turnquist,** Machined Parts, Plant 30 - Sylvania 25-inch color TV console w/1 year service.

4. **John Meany,** Contracts, Plant 5 - G.E. 25 inch color TV console, w/1 year service.

5. **Joseph Morelli,** Tool Fabrication, Plant 2 - Fisher 120 watt amplifier w/Garrard Turntable & 1 pair Superdynamic Speakers.

6. **Jacqueline Kelly,** Air Traffic, Plant 7 - RCA 23-inch color TV console w/1 year service.

7. **John Heskin.** Production Control, Plant 6 - Sylvania Stereo console TV w/1 year service.

8. **Brian Malin,** KSC Test Support, Plant 83 - Pioneer 70 watt amplifier w/BSR Tuner and 1 pair Creative Speakers.

9. **Glennon Kingsley II,** Flight Evaluation, Plant 25 - Magnavox Stereo Sound System.

10. **Adeline DeMeis,** Reproduction Services, Plant 35 - G.E. American Range or Caloric Gas Range.

11. **Eugenia De Livron,** Engineering Salary & Expense Administration, Plant 35 - Caloric Gas Range.

12. **Theresa Woods,** Program Management - F-14, Plant 1 - Magnavox 19 inch wood color TV w/stand.

13. **Herbert Loromer,** Communications Administration & Staff, Plant 30 - G.E. 18-cubic-foot Frost-Free refrigerator.

14. **Clement Wojciechowski,** Facilities Maintenance, Plant 6 - Sylvania 18-inch portable color TV.

15. **Frederick Meinhart,** Ground Test Instrumentation, Plant 6 - G.E. Port-a-color TV.

16. **Dorothy Treutle,** Program Procurement Operations E-2, Plant 15 - Frigidaire Skinny-Mini Washer-Dryer.

17. **Edmund Borgo Jr.,** Product Support Fluid Engineering, Plant 33 - Westinghouse Duplex Refrigerator-Freezer.

18. **Joel Coleman,** Plant Protection, Savannah, Plant 55 - G.E. 23-inch black & white TV console.

19. **Raymond Beauchesne,** Machine Shop, Plant 3 - Westinghouse Automatic clothes dryer.

20. **Evelyn Metcalf,** QC Tech Services, Plant 35 - G.E. 16 pound automatic washer.

21. **Lawrence O'Keefe,** Production Engineering, Plant 25 - Whirlpool automatic washer.

22. **Daniel Tynan,** Engineering, Plant 88 - G.E. Upright Freezer.

23. **Gottfried Eggart,** Tool Fabrication, Plant 6 - G.E. Undercounter Dishwasher.

24. **Daniel Frye,** Product Support RF & Video Engineering, Plant 34 - G.E. 23-inch black & white table model TV w/stand.

The first winner is . . . Phil Johnson, as Bill Zarkowsky, President of Grumman Aerospace, reaches into drum to pick a stub. Watching the draw are Kay Zuk and Gus D'Errico, head of Employee Services. (Photo by Fred Annette)

Grumman estimates $65 million loss on F-14

BETHPAGE, N. Y.—Grumman Corporation reported last Thursday, January 20, that Grumman Aerospace Corporation, one of its wholly-owned subsidiaries, has estimated that a loss of approximately $65,000,000, before tax adjustments, will be incurred in the performance of the work now required by its contract for the F-14A Tomcat aircraft. The contract includes the flight development program and a total of 86 aircraft, including 48 aircraft in the Fiscal Year 1972 program for which the Government exercised an option on September 30, 1971 and money was appropriated by the Appropriation Act effective on December 18, 1971.

The Corporation's financial statements for 1971 will reflect this loss by a write-down of F-14A inventories to realizable values. Preliminary figures for 1971 indicate that, as a result of this inventory write-down, the Corporation incurred a net loss of from $2.20 to $2.60 per share. Final audited results will be released in the near future. The Corporation now anticipates that overall results for 1972 and 1973 will be profitable.

As previously reported, the major causes for this loss are the unanticipated accelerated rate of inflation in the nation since the contract was negotiated in 1968, and the fact that the Government's expenditures for defense and space programs have been lower than were forecast in planning documents at the inception of the contract. Grumman statistics show that, were it not for these two factors, the contract would have been profitable.

Changes in the contract delivery schedules for the F-14A have become necessary because of the realignment in the flight test schedules caused by the loss of the first test aircraft in December 1970. The anticipated net effect of the price adjustments necessitated by these and other changes has been taken into consideration in estimating the loss to be incurred. As a result of these changes, it is anticipated that deliveries of the Tomcat fighter currently on order will be completed in mid-1974. The contract contains further options for the Government to procure varying quantities of aircraft at specified ceiling prices. If the Government exercises any or all of these options at those ceiling prices, Grumman Aerospace Corporation would incur substantial additional losses. Although the Corporation will honor its F-14A contractual commitments through mid-1974, Grumman Aerospace Corporation has advised the Department of the Navy that it considers the Government's options to be invalid and that it can not accept orders for additional F-14A aircraft at the ceiling prices now specified in the contract. It is not possible to predict the outcome of this matter, but Grumman Aerospace Corporation expects to enter into discussions with the Navy shortly looking toward prompt resolution of these various problems.

On December 16, 1971, the Tomcat passed a major milestone in its continuing flight test program with the very successful completion of the Navy's first Preliminary Evaluation. This critical test of the fighter was the first time that Navy pilots had flown the Tomcat, and its performance throughout the program was outstanding. During eight flying days, two aircraft flew a total of 39 flights in 74 hours of flight time, including four flights by one aircraft in a single day. According to Navy records, this evaluation was the most comprehensive ever conducted.

Decisions, decisions. The day after the United Fund drawing the winners huddled in the Plant 35 cafeteria—and now it was just a matter of choosing a prize. (Photo by John Boles)

Predict LST will unlock space secrets 'beyond comprehension'

Thinking and talking in the scarcely comprehensible terms of "six to eight billion light-years," some Grumman space experts in Plant 25 are progressing on a pre-Phase-B study of NASA's Large Space Telescope. LST is to be launched, in the late '70s, from the Space Shuttle—one of the first of the Shuttle's payloads, and the largest astronomical satellite thus far planned by the National Aeronautics and Space Administration.

In a speech on "Future Unmanned Astronomy Spacecraft" before the American Association for the Advancement of Science last month, Pete Simmons, assistant for Space Astronomy to Vice President Ralph Tripp, had some words on the implications of such an observatory.

"The use of unmanned space observatories during the past several years . . . has convinced us," he said, "that the next generation of astronomy spacecraft will unlock secrets of the universe which today are beyond our comprehension. . . .

"The Large Space Telescope, planned for launch in 1978, with its three-meter (120-inch) aperture," Simmons said, "will achieve more than 100 times the angular information density of the Mt. Palomar telescope, which will permit us to refine the luminosity calibration of stars—this being fundamental to our understanding of the distance scales. Stars and star-like objects, he said, would then be able to be detected and measured by LST "at a horizon of the universe 10 times more distant than currently in our power."

Big cost savings

Part of Simmons' discussion included LST cost considerations, in some very robust figures. If LST can rely on the Space Shuttle over a 10-year period, its cost can be kept to $400 million, instead of a projected $1.2 billion without Shuttle. Such a saving serves to dramatize Space Shuttle economics. By taxiing LST into orbit and then rendezvousing with it periodically for 10 years, the Shuttle could reduce the number of LST flight articles from six to two; available hardware could be used on its original flight and then updated later in orbit; and fewer redundant systems would have to be built in, to name a few examples of these economies.

How does LST, with its 120-inch mirror, compare with the Mt. Palomar ground-based 200-inch telescope? was a question put to Simmons.

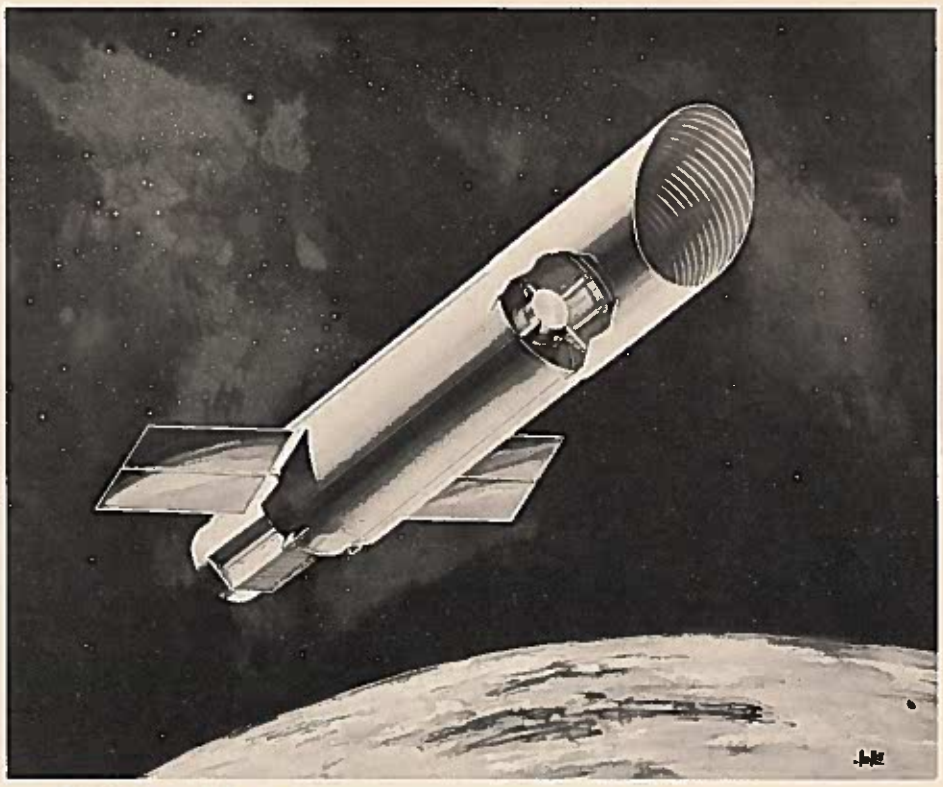
"The inevitable drawback to any ground-based telescope," Simmons explained, "is the shimmer of the earth's atmosphere that limits an observer to stars within the 24th magnitude—and a horizon of three to four billion light-years.

"LST, when orbited, will have the capabilities, with its three-meter defraction-limited optics, of extending the horizon of the universe from three billion light-years (today) to probably eight billion light-years," he said. "This extension of the horizon will allow astronomers to determine whether the universe has a curvature and whether it is finite. To achieve this, the LST will have to be able to observe stars 100 times fainter than observable from ground or from current space observatories out to 29th magnitude stars."

OAO still tracking

The dimmest star seen by the naked eye on a clear Long Island night is of the fifth magnitude. Mike Proise, Guidance & Control engineer on the LST, has said that to be able to point the LST to dim stars will require stabilization of the spacecraft to 0.004 seconds of arc (comparable to sighting a rifle on a basketball 1,000 miles away).

Grumman has been working on the Large Space Telescope for some time, beginning with a modest study contract in 1970, and now continuing with an in-house effort in anticipation of a NASA Request for Proposal next summer that could lead to a Phase B design contract, and, hopefully, the contract to produce the hardware. Meantime, work goes forward on OAO-C, scheduled for launch in August.



LST in orbit. Cutaway of latest Large Space Telescope version shows detail of the secondary mirror. Primary mirror (120-inch) is above the solar paddles. The louvered modules are subsystems replaceable through Space Shuttle visits. (Painted by Ron Hill)

OAO-2 is in its fourth year of continuous orbital operation; it is NASA's longest-lived satellite that still meets the original performance criteria. The University of Wisconsin experiment on board continues to send back valued information on planets, stars, and comets, and, Simmons declared, "this data, together with the higher resolution data from OAO-C, will provide a basis for the questions that LST will hopefully answer."

Change in Medicare

Part B of Medicare, the voluntary doctor-bill insurance program for older people, will go up 20 cents a month beginning July 1, 1972. The new rate will be $5.80 per month, up from the present $5.60.

GDS names Holtje to head Computer Operations

About four years ago, when he was asked to prepare a self-sketch for a luncheon of Grumman engineering scholars, Dave Holtje (a 1949 scholar) described himself as being no taller than when he won his scholarship, but weighing about twice as much.

So it appears that Holtje, besides bringing a wealth of experience to his new post as director of Computer Operations for Grumman Data Systems, also comes equipped with qualities that may be equally as important: a sense of perspective, and a very wry humor, to boot.

Dave Holtje
Sense of perspective

Dave, named by Vice President Walter Wood to one of the key hot spots in GDS, is responsible for the "effective operation and maintenance of all computing equipment and related support activities in the Data Systems Center." That area includes key punch, computer operations and scheduling, and systems programming—and it is a "hot spot" because Holtje and his people are on the firing line 24 hours a day, with a three-shift operation necessary to meet all the requirements and deadlines of Data Systems customers.

And things are not likely to cool down. Holtje sees the next couple of years as being even busier for Computer Operations because of a step-up in F-14 production and, hopefully, a win in the heated Space Shuttle competition.

Although he has had considerable experience with the computing world as a flight test engineer and manager, and has helped bring the Automated Telemetry System at Calverton to fruition, Holtje sees his own biggest test as being other than pure computer technology.

Encourages to 'turn on'

His goal, as he sees it, is to provide the management environment that will encourage his people to "turn on" their skill and initiative to provide GDS with a smooth running, economical computer operations world.

Born and bred in Bay Shore, Holtje has been a Long Island resident all of his life except for four years at Stevens Institute of Technology (which lies across the river in Hoboken, N. J.) where he earned a degree in mechanical engineering, and a couple of short tours at the Naval Air Test Center at Patuxent River, Md., while he was a flight test engineer.

Following graduation from Stevens, he came to work full-time at Grumman to do test work on the Rigel missile, transferred to Structural Flight Test shortly thereafter, and following a stint as group leader there, became head of the Aero Structures section of Flight Test in 1962. Aero Structures engineers plan, direct, analyze data from flight tests, and make evaluations from these data.

Three years later, in 1965, Dave moved in to the Apollo Applications Program as Test and Operations manager, then, in August 1966, Holtje joined the staff of Vice President (now Senior Vice President) Corky Meyer to assist in the organization and administration of the Flight Acceptance Department.

He was named assistant director of Flight Acceptance in October '67, serving in the area of technology and instrumentation, and two years later, in November 1969, joined Grumman Data Systems as the account manager for the Automated Telemetry System.

Dave and his wife Marjorie live in Bay Shore still with three other Holtjes, Stephen, Ellen, and Nancy.

Although he's mainly desk-bound now, Holtje makes sure he's visible in the Computer Operations area at least part of the day—and those "walk-around tours" are to provide computer operations people with the opportunity to meet him person-to-person. Try him out; he's a good listener.

I walked in the front door and I thought . . . 'They're not going to last very long . . .' so I walked out the back door

History was made. Charlie Solarski (L) and Ken Lee were young and involved in the early days of aviation, the days of Lindbergh and 'aviation's cradle,' Roosevelt Field. Lee joined Grumman 38 years ago and spent most of his years in structural test. He's now retiring to enjoy Vermont and Florida. (Photos by Fred Annette)

The day that Ken Lee completed 38 years with Grumman, January 13, 1972, seemed an altogether auspicious time to think about the fast-moving early years of aviation history on Long Island. Plane News, with an eye to the lively turn of phrase, invited Charlie Solarski to join in.

Lee's special field has always been Experimental and Structural Test. Solarski, with Permanent Number 11, was on board in the first year of Grumman's 42-year history. He headed "the Motor Department" for 16 years and then supervised Mallard and Albatross production, Sub-Contract, Cost Reduction, Traffic, Fixed Assets, Project Sterling.

For the conversation Solarski appointed himself interlocutor, drawing out Lee, whose aircraft career goes back to Curtiss Wright days, 46 years ago. His Permanent Number is 154.

KL: The first drop test I ever made was for Curtiss, where I worked before coming to Grumman. I smile every time I think about it. Now we have a quick-release hook to let the airplane drop. Our "quick release" then was a manila rope, and a guy was up in the rafters with a hatchet. Someone would shout, "One, two, three, drop!" and the guy with the hatchet comes down with it and cuts the rope. This is back in the '20s.

We used to make landing gear tests by just dropping the landing gear with a suitable amount of ballast on it; there was no instrumentation. Well, today, you drop the whole airplane; you don't make a test of the landing gear, you make a test of the airplane, and the wheels are spinning backwards at whatever the landing speed is, and the platforms are instrumented with strain gauges. . . . Years ago, if you ran a wing test, you just got a wing and you loaded it up with sandbags until it broke. And when it broke you couldn't stop it; it just went CRASH. . . .

One time we were 200 pounds short so we put Jake Swirbul on the top for ballast. He weighed 200 pounds.

Then we started using turnbuckles. And then Charlie Tilgner came out with the idea of hydraulic jacks, in the late '30s. We bought the jacks from Professor Beggs of Princeton, and we still have them. We still use them.

CS: What you have just described to me shows that you had a big sandbox and you always were good at the gadgetry.

KS: No, truth is, essentially, I'm a very lazy guy. This brings up a point. They used to sew fabric on wings at Curtiss. That was a job I used to hate; a miserable job. I thought there must be a better way where you could put the covering on the wing without stitching it. This idea stayed in the back of my mind for years. During World War II the airplanes got kind of fast and the rib stitching wasn't good enough, so I went to Mr. Grumman (I made a sample of this thing to hold the fabric onto the wing), and he said, "How did you ever get the idea?" and I told him, "Just lazy." . . . We used it as long as we had to cover anything. . . . Boeing wanted to use it on the B-29s and they wanted seven million feet—something like that—and we couldn't make it that fast.

Started in experimental

CS: How did you feel when you got away from your old love of aircraft, where you were flying, and went into experimental operations?

KL: Well, when I used to fly I never had a pilot's license. So most of the work I did was to keep the airplanes flying.

CS: Again, it's the old glamour type of aviation. In those days every kid wanted to fly. Even I wanted to do it. I went down to Texas to learn how. This was in the mid-30s; Ken's talking about the '20s. I started in this business in 1927. That was the year that Lindbergh flew the ocean.

KL: I lived near Roosevelt Field. Worked on Lindbergh's airplane, The Spirit of St. Louis. When I worked at Curtiss I was in the Experimental Department and everybody that came in to Roosevelt Field, if they needed any work done, would go to Curtiss. I made a whole strut for Clarence Chamberlin's Bellanca, the one he and Levine flew trans-Atlantic non stop a week or two after Lindbergh. I put the compasses in.

With Lindbergh, they built the airplane in San Diego, he flew from there to St. Louis, from St. Louis to New York, and once he got to New York, the only thing that I know of that he had done was to replace the spinner (propeller hub cover), which was cracked. I got sent down to the field to take the spinner off. Went back to Curtiss and we looked around and found another spinner that would fit and drilled a few more holes and took it apart and put it back on the airplane. Funny thing: that spinner was a piece of junk, so we kicked it into the corner of the hangar. Know where it is now? In the Smithsonian.

CS: You got the jump on me because you were close to the airfield. Young fellows were crazy about this stuff. I came from a different breed of horses. I used to trim windows for Rogers Peet. Then I got into the airplane business with Loening, and after I worked there for two months I would have worked for nothing. This is how much it intrigued me. That's what I want to know from you, Ken. How do you feel about being in aviation all your life and leaving it now?

KL: When I was a kid, I'd go down to the field, and if a guy had a dirty airplane, I'd wash it for him and then he'd take me up and give me a half-hour of instruction. That's how you learned to fly. Money was unheard of. So pretty soon you got so you could rig airplanes. Couple of friends of mine had more money than I did and they bought an airplane and we all flew together, up at Kingston, N. Y. That was just before I came to Grumman.

I'll have to tell you how I came to Grumman. Curtiss moved to Buffalo but I didn't want to go to Buffalo. So I went to Valley Stream, where Grumman was then, and I walked in the front door and I thought as I looked around, "They're not going to last very long," so I walked out the back door and I didn't even ask them for a job and I went flying for a couple of years.

We had a bad winter in 1934, so I came back here, and by that time Grumman had moved to Farmingdale. I went down to see Jake (Swirbul) and I started then. By that time, it seemed that they were going to make it.

Hired by Jake

I was interviewed by Jake (this was in Farmingdale, in December) and I told him I could do everything. One of the things he asked was could I work on steel tubing—because there was a lot of it in those days—engine mounts and what-have-you. . . .

CS: Was that the first thing you did when you came to work for Grumman?

KL: No. The funny part of it is, I've been here 38 years and the only thing that I never did since I've been here is to work on steel tubing. This was in December, and in those days they paid a $10 Christmas bonus. I guess Jake didn't want to pay me the bonus so he said "Look, start right after Christmas." So I was hired on December 13 but didn't start until after New Year's, 1934. I went to work for Julie Holpit and Julie was in Hawaii. Everybody told me what he was like and I was scared to death of the man. Well, I ended up working for him (in Experimental and Test) for 25 years.

(Continued on page 7)

Announce Feb. 1 sign-up date for GAA spring flight to Europe

A charter flight to London and Frankfurt in springtime for $180. Would you like to be going?

The Grumman Athletic Office has lined up a flight for Grummanites and Grumman retirees Friday, May 26, to Saturday, June 17, for $180 round trip, going via London to Frankfurt on a Pan American Boeing 707. Eligible relatives include parents, spouse, dependent children living in the same household. They must be accompanied by the employee, in accordance with IATA regulations.

Children under two at time of departure travel free. Price is based on a full airplane.

Cash on line

Sign-up is next Tuesday, February 1, at 5:30 p.m., waiting room, Plant 28. Names will be drawn to determine order of sign-up. Be there in person, with full payment of $180. Checks should be made payable to Bethpage Aircraft Tour Club.

Cancellation date is March 15, and full refund of flight money will be made if you cancel before this date. Refunds will be made **after** this date only if an eligible replacement is available, GAA says.

Now about time off. Fourteen working days are required for this trip. GAA points out that **"Unpaid time off** may be granted to supplement an employee's vacation allowance if he is participating in a Company-sponsored tour. Such time off normally would be limited to the difference between the employee's total annual vacation allowance and the total number of workdays required for the trip.

"If this difference is five working days or less, a Leave of Absence would not be required.

"However," cautions GAA, "it is the traveler's responsibility to get permission from his department for any time off necessary to make the trip. If you need time off and have not received the necessary permission when you sign up on February 1, you should do so before February 15."

Passports are required. Information sheet and passport application forms will be distributed by GAA. Smallpox vaccination is not required.

A meeting of the group will be called approximately two weeks before departure. For further information, call GAA, Plant 28B, Ext. 2133 or 2269.

Honored for service. **Capt. Bob Belter, Navy Plant Representative at Bethpage, assisted by Cdr. Jim Roth, Resident-in-Charge of the Calverton Navy office, wields a mighty big cake-cutter during ceremonies honoring six 30-year Government employees. Standing by waiting for a piece of the 'birthday' cake are Bill Kozulak, Dick Walton, Len Giambalvo, Dom Armocida, George Diana, and Bill Ghigna.**

. . . Take it as it comes; we coped with problems

(Continued from page 6)

CS: That brings up an important point. I think you have a uniqueness in this Company because you did work for one guy.

KL: I got into a rut.

CS: Well, call it a rut, but you advanced so much and I think you were right on top of it. You hit it off pretty well with Julie from the beginning, didn't you?

KL: I always got along with Julie. He has a lot of good points. One thing, you could argue with him and I think he thought more of you if you did argue. After 38 years, I'm still arguing with him. . . .

CS: In those days, how were raises?

KL: When I came in here I got 55 cents to start with. Boy, that was wonderful. In those days you hit 75 cents and you were there.

During the conversation, Solarski would dig at Lee every little while to try to get his reaction to the changes that have taken place in less than a lifetime. Lee takes life a little too philosophically to get very dramatic. He does, however, note that there has been "quite a jump" from fabric-covered wings to the exotic materials, boron and titanium, the tests for spacecraft: extremes of cold and heat, solar radiation, hard vacuum. "Had to set up different departments— Environmental, Materials Testing." Lee's most recent assignment was consultant to Engineering, "how to make it cheaper and better."

"You find today's kind of work very intriguing?" he is asked. "Too much red tape," responds the free-wheeling Lee, puffing on his pipe.

He has designed a house, and built much of it himself, in Stowe, Vermont, and when he isn't there he and his wife, Irene, will be living in their travel trailer. "We never had any money, but I've seen most of the world," he says. Both he and Solarski seem not to long for the old days of aviation—nor, for that matter, the new days. "You take it as it comes. We coped with the problems. We helped solve them."

Reminiscing. **Ken Lee (L), completing 38 years with Grumman, talks shop in Structural Test hangar with Charlie Solarski, whose service with the Company started in 1930. Solarski was a 'Loening alumnus,' and Lee spent his early years with Curtiss, 'where you just got a wing and you loaded it up with sandbags until it broke."**

F-14 testing pace quickens

There's a quickening pace in the F-14 program as eight Tomcats have flown, five of them supersonically, and four of the group are now at Point Mugu for weapon system installation.

The lead bird thus far is No. 2, the slow-speed aircraft used for "stall" tests, which has made 70 flights for 153.9 flight hours. It is now in layup for gun installation.

Very close behind it in flight testing is the high-speed Tomcat, 1-X, with 48 flights to its credit and 128.1 flight hours. It's also flown supersonically for about five-and-a-quarter hours. The plane is in layup after having completed ground vibration survey.

Tomcats 3, 8, and 10 are also at Calverton, and the first of the trio (what's called the structural aircraft) has made several flights and has flown supersonically. No. 8 has flown for 4.1 hours; No. 10—the carrier suitability aircraft—arrived at Calverton last week and is scheduled for flight test in February.

While all of this has been going on, Grumman's group at Point Mugu has been busy: No. 4, 12 flights for 23.8 hours; No. 5, eight flights for 22.4 hours; No. 6, 10 flights and 22.9 flight hours; and No. 9, seven flights for 18.7 hours. Each of the last three Tomcats at Mugu flew supersonically. Tomcats 4 and 9 are ticketed to go to Hughes following the installation of weapons systems and associated equipment.

So Hal Sheprow, Flight Test manager for the F-14, and his fellow members of the development team have to be happy, though figuratively snowed under.

Monica Wojtyniak slams pins for 259-660 Mixed assault

If there were any doubt about the "equality of the sexes" in the Syosset Mixed loop, Monica Wojtyniak punctured that bubble recently with the help of a glittering pin exhibition. Monica, who had carried a 161 average into the round, fired a 223-259-660 and wound up the evening with high game and series records for women—and beat out John Betterino's 257 the same session for the league high mark as well. How about that!

Monica led off with a spare, then threw seven straight strikes during her 259. Other high scorers in recent Syosset Mixed play include John Betterino, 225-201-619; Bill Meehan, 210-550; Rita Mathia, 526; and Marilyn Bunzel, 515. . . . Dom Martino rolled 216-583, thereby shading Dave Evans, 212-582, and Joe Oakes, 234-581, in the Aerospace circuit. Other highlights: Clem Joie's 202-203-579, Art Conchilek's 216-573, and Frank Apa's 206-565.

Dudonis hits 638

Bob Dudonis is at it again—this time the Classified star hit 202-203-233 to finish with 638 and lead the league scoring. In that same session, Ed Meaney tied Dudonis' game record with a hefty 246 in a 597 string, while Bob Ruotolo registered 205-571, and Don Kump reached into the scoring circle with 202. . . . Bill Harris' 235, Rudy Dunkley's 228, and Howie Strohl's 229 paced Nite Owl play. . . . Harry Martinucci got a piece of the Patchogue Mixed men's high game with 236, then went on to take over series honors, too, with 595. Norma Landin fired 218-545, Val Lindstrom hit 212-557, Ken Becker had 578, and Joan Burgess finished with 511.

Not content with holding the Masters circuit game record, George Fowler went after the series mark in a round a couple of weeks ago, and nearly made it. George finished with 836 (with help from 236), a total only five sticks off Fred Skirde's loop record. Other high spots: Dick Spalding's 785, Jack Nielsen's 775, Sid Smith's 231-777, Sid Kaufman's 785, Al Kirillin's 785, and Ed Gabriel's 780. . . . Ted Dija headed pin spillers in the Black circuit as he tossed 205-577, then came back with 222-589 to shade Ed Burlingame's 588. Fred Kuehne's 225-562 and Wil Buck's 201-562 were other high scores.

DiDonato stars in Classic

Dick DiDonato threw a hot series in the Classic league, leading off with 230, following that with 224 before "slumping" to 193 for a 647 total. Bob Dargis hit 214-202-200 for 616 to round out the scoring. . . . In the Hawkeye Mixed, top scorers were Ernie Neves, 220; Tom Cava, 568; Phil Barton, 226; Tom Murtha, 602; Joe Tornatore, 530; Arlene Schwemmer, 534; and Edna Jezewski, 198. . . . Rocket readings included Charlie Stumpf's 217-588, Norb Strohsnitter's 207-551; John Cortese's 202-565; and Dom Bello's 548.

Art Lih kept the Systematics near the top of the Hellcat circuit in action at Woodbury Lanes recently, as he shattered the game record with 244, tacked on 201, and finished with 618. Bill Harrell closed at 214-569, Ed Cramer Jr. registered 213-564, and John DiSalvo signed in with 226-206-563. . . . The "600" range is proving to be an elusive target for Red league bowlers. Ernie Maas came closest in recent weeks as he shot 587 with the assistance of 201, while Harold Brower shot 206-205-584; Bob Nielsen, 212-565; and John Strakosch, 560.

Monica Wojtyniak
Sizzles with 259-660

Vazquez leads

Although he entered the varsity bowling trials with a modest 177 average, Don Vazquez holds an eight-pin advantage over Ed Gabriel, 2359-2351, after two rounds (12 games) of rolloffs. Don hit 1202 in the first six-game block, with a high of 233, in the opener at Mid Isle Lanes two weegs ago, then he came back with 1157 in last week's session.

Gabriel hit 214, 224, 222, in his 1198 set last week to jump from 11th to second in the standings as the varsity aspirants were pared from 65 to 32. Rounding out the first 10 are Fred Skirde, 2350; Nick Malandro, 2341; Frank Tucholski, 2339; Ken Gutekunst, 2331; Ben Plawski, 2329; Dave Evans, 2294; George Fowler, 2282; and Jerry White, 2280.

Among the high games rolled during the first two sessions were Frank Tucholski's 245, Judge Locke's 245; Ernie Jenkins' 266; Bob Hoehn's 248; Fowler's 244; and Nick Malandro's 238.

Action continues tomorrow, Saturday, January 27, starting at 5 p.m. at Mid Isle Lanes in Hempstead. Following tomorrow's six-game block, the field will be further reduced to 24, and after next Saturday, February 5, only 10 bowlers will remain in the running for the varsity.

Spoilers streak in net league

If the Spoilers aren't running away from the rest of the league in the Wednesday basketball loop they're doing a good job of opening up a big gap in the standings. Jim Cruthers helped the Spoilers rack up their eighth straight recently as he poured in 25 points to pace an 82-62 victory over the Tomcats. In that contest, Ron Bartlett added 18.

Earlier, it was much the same against Propulsion as Bartlett clicked for 22, with support from Cliff Sherman's 19, as the Spoilers gained a 63-52 decision. Propulsion led by one point at the half, but Bartlett, Sherman, and Wes Dougles (15) poured it on in the fourth stanza to break open the game.

In a 79-44 rout of the Supporters, Cruthers collected 26 and Bartlett had 22 to pace the win, while Dougles hit for 16 and John Bell 13 as the Spoilers skinned the 'Cats, 55-48, and Cruthers had 21 and Hal Manaskie added 18 in a 68-57 win over Propulsion early in December.

It was a different league, the Tuesday after-hours circuit, but Jim Cruthers put himself in the high-scoring circle again as he netted 29 points to spark the Hustlers' 84-79 over the Newcomers. It was the first defeat of the season for the Newcomers, who now stand 6-1 in the league. Lee Gendron (27), Vin Clerico (25), and Doug Keuling (22) led the losers.

The Digits came back two weeks later to sock the Hustlers, 83-78. George Lowe (18) and Bob Schmidt (17) led the win. Walt Gleich's 22 points for the Hustlers took scoring honors.

Hoop victory

Clutch shooting and John Ebron and Frank Quarto, combined with a strong defense, proved decisive for the Grumman varsity basketball squad when it met the Lutheran H.S. faculty in the opener of the L.I. Industrial loop. Quarto hit for 23 points and Ebron added 21 to pace a 68-54 win for the varsity.

Grumman's next game is against LILCO "B" at the Bower School in Lindenhurst, starting at 8:30 p.m.

Berka, Rice hot in pistol play

Al Berka paced the Grumman D pistol team to two straight wins in the L.I. Industrial loop, the first a 1088-1070 victory over Brookhaven Labs, and the second a 1080-1051 decision over Grumman A.

Berka fired 290 in the .22 caliber competition, with Joe Oliveri contributing 282, Roger Seybel, 261, and Art McKee, 256 in the Brookhaven win. Against the Grumman A team, Berka shot 282 but took second honors to Dave Rice's 286 for the A team. Oliveri had a 275 in that engagement, while Jerry Minera hit 263 and Art McKee had 260.

John Crawford and Ron Hughes shot 256 and Allen Carter hit 253 for the losers.

The D team now has a 4-2 record in the expert division of Industrial play, while the As show a 2-3 mark.

Baumgarten stands out

In other results, Matt Spencer recorded 248 but the Grumman E squad lost to Republic, 912--977 to Republic in the sharpshooter division, while Mike Baumgarten's 266 and Charles Boppe's 254 led the Grumman Cs to a victory over IBM.

And a couple of days later, Baumgarten shot 267 to run the Grumman C team record to 5-0 in the loop during a 999-884 victory over Pan Am.

In center-fire (.38) results, Grumman defeated Freeport in the South Shore league as Dave Rice registered 268, Phil Boehm, 239, Bob Bergeman, 233, and Art McKee, 226. The win put their record at 2-2.

What a shock!

If things weren't tough enough for the Grumman Gophers in the South Shore Rifle League, an outbreak of flu, combined with business trips, put the riflemen in the embarrassing position of having to forfeit a recent match with S&W.

Only four members showed up for the contest, with George Hilton firing 196, Ed Brandis, 194, Warren Block, 185, and Bob Lang 181. Since their next match is against league-leading Roslyn, the Gophers will likely sustain their third loss—and thus finish out of the top three teams.

Captain Hans Forsch urges anyone who may like to shoot, especially those who may have had target shooting experience, to come out for the team. If you're interested, contact Hans on Ext. 3919 for more information.

Alpine ski team scores first win

On January 8-9 at Pico Peak in Vermont, the Grumman Ski Club's alpine racing team opened its 1972 N.Y. State Amateur Ski Team League season by scoring a convincing victory over four other squads.

The women's ski team dominated competition against the University of Connecticut, Norway, Swiss, and Tre Rise ski clubs by sweeping the first five positions and seven of the first 11, in the giant slalom, the only race scheduled for women. Fastest time through the gate was Peg Rosenberg; she was followed by June Bond, Carol Sweeney, Ellie Rosenberg, and Joan Spohr.

Riho Melts paced the men's giant slalom team by taking first, with Frank Rosenberg second. It sparked a 1-2 sweep in that race, a 1-2-3 finish in the downhill, and 1-2-3 in the combined standings. Downhill leaders were Frank Rosenberg, John Morse, and Melts, while Melts also took first in the combined men's standings, trailed by Rosenberg and Morse.

Ron Cooke, who finished 17th in the giant slalom, earned the gold medal in the "B" division, while Dick "Downhill" Stinson was too "good" for his own good—he finished eighth in the downhill but was disqualified from consideration for the "B" medal because he posted a faster time than the median time for "A" racers.

Scura leads billiards

Cosmo Scura of Plant 30 is leading group 1 at the end of the first half of play in the Grumman Pocket Billiards League, with George McLaughlin ahead in group 22 and Ken Lango, the group 3 leader.

'Going away' party for Hutton

A Company-wide retirement party honoring Senior Vice President Dick Hutton is being planned for Monday, February 21 (Washington's Birthday), at the Huntington Town House. Festivities are scheduled for 4-6 p.m., with spouses of Grummanites invited to attend. Cocktails and hors d'oeuvres are on the menu.

Dick Hutton joined Grumman over 40 years ago, and since that time his ascendancy in the corporate structure pretty much paralleled the technical success—marked by outstanding aircraft and spacecraft—of Grumman. In 1930, Dick became the 21st person to join the Company, and over the intervening years headed many successful engineering project teams.

He was elected Vice President - Engineering in 1959, a Senior Vice President in '63, and became a member of the Grumman Aerospace Board in '69. He plans to retire March 1.

Because of Dick Hutton's popularity throughout the Company, a committee has been established to provide ticket information and ease the "reservation" pinch so that all his many friends who wish to come can attend. Following is a list of Grumman plants (in brackets), the committee members in those plants, and their phone extensions. Call them for ticket information. Remember: deadline for ticket reservation is Monday, February 7.

Committee members

(1) Tom Ryan, 1985; (2) Vic Bollo 3604; (3) Bob Noe, 2154; (5) Muriel Leighton, 2717; Don McQuilken, 86595; Tony Ingoglia, 1068; Bob Kramer, 3685; (6-7-8) Bill Katona, 305; (12) Joe Racz, 1717; (14) Bob Barth, 1313; (15) John Michaelsen, 1763; Pat Gatta, 1938; (25) Art Gross, Harry Brand, 1345; (27) Buster Wallace, 1921; (28) Herb Anderson, 2280; (30) Dick Keschinger, 9601; (33) Bill Guarino, 86258; (34-34C) Ed Lombardo, 3648; Al McRae, 9533; Alonzo Gibbs, 2302; (34D) John Magenheimer, 7601; (34F) Bill Kampf, 9310; (35) Norm Maier, 2300; Rhodes Copithorn, 2457; (36) Carl Paladino, 9793; (39) Art Gilmore, 1203; (GDS) Adrienne Oestele, 1866.

N. Y. Times: 'Major investment'

"The space shuttle represents a major investment in the future," said The New York Times in its lead editorial Saturday, January 8.

It pushed aside some negative arguments—we don't need it, it shouldn't be a priority item, and it's too costly—to "vote" favorably on President Nixon's decision to proceed with development of the shuttle. It suggested taking the money from the defense budget.

"If implemented successfully," said The Times, "it will radically alter the economics of space activities and provide dividends that should continue for decades to come. More immediately, appropriation of the needed sums—averaging almost a billion dollars annually for the next six years—will revitalize a major branch of American technology which could literally disintegrate if no such project were undertaken this decade."

The Times sees the Shuttle as "intended to be a reuseable space vehicle, so constructed that it could land unharmed after the fiery test of atmospheric passage, ready to go up again soon. If successfully built, this reuseable shuttle would cut the cost of putting a pound of matter into space from $600 or $700 to about $100."

The Times article continues:

"The economic revolution resulting from this new capability would permit the opening of numerous frontiers of space for human benefit. Whether one thinks of earth surveillance projects for ecological, agricultural, forestry, fishing or other purposes, or the capability of repairing communications or navigational satellites in orbit, or of launching unmanned planetary probes more cheaply than is now possible, or even of using the weightlessness and vacuum of space for manufacturing purposes, the prospects would all be greatly enhanced by the new space economics flowing from a shuttle."

There is also a potentially international aspect to it, one dissimilar from "the atmosphere of Cold War hysteria that attended the birth of the lunar landing effort," says The Times. "On the contrary, NASA has already stated publicly it would welcome cooperation on the space shuttle from other industrially developed nations, including the Soviet Union."

Although The Times recognizes that many "technical problems" have to be overcome, the paper believes that with close monitoring and "financial stringency, both NASA and the aerospace industry have every incentive to make this imaginative project a reality. . . ."

Space shuttle. A model of the Shuttle booster sits on Joe Gavin's desk as he holds hydrogen-oxygen tank (L) that will separate from Orbiter before it prepares for an aircraft-like landing. (Photos by Bob Settles)

Shuttle next logical step

(Continued from page 3)

satellites that will be serviced by the Space Shuttle. . . . The best perspective for looking at the Shuttle is from earth orbit, because you see the whole planet and its resources from there. . . . The Shuttle may well become the standard launch device. . . . It will provide, for the first time, for rescue in space. . . . Improving things on the ground is well within reach technically. The barriers are not in space but in the political and economic facts on the ground. . . . The time for long-range thinking? The time is here. . . .

Investing in future

"What's of prime importance to the nation? It's to what extent does it apply its resources to investments for the future. Results will always be unknown, so there has to be a lot of imagination and risk-taking. Individuals and small private groups and communities used to bear the burden. But maybe now it will take international cooperation."

(This is the first of a series of articles on the Space Shuttle, which will include effects on the economy, a look at Shuttle team leaders, evolution of the Shuttle, Support operations, associated contractors, and so on.)

OBITUARIES

Plane News has received word that death has come to the Grumman personnel listed below. We extend sincere sympathy to relatives and friends.

EDWARD J. FITZPATRICK of Power Plant Design, Plant 25, died January 12. Hs was 38 years old and had been with Grumman two years. He lived at 41 Gull Dr., Hauppauge.

ANTHONY J. ROME died January 14 at the age of 40. He had been with Grumman five years, and his department was Manufacturing Plans & Proposals, Plant 2. His home was at 3820 Tiana St., Seaford.

ELI D. GOTTLIEB of P/S RF & Video Engineering, Plant 4, died January 16 at the age of 46. He had been with the Company five years. He lived at 248 Buick Pl., East Meadow.

EDWARD J. COONEY died January 19 at the age of 51. He had been with the Company 26 years and had worked in Machine Operations - Technical Service, Plant 3. His home was at 37 Autumn La., Hicksville.

CONIE M. PALERMO of Avionics Installation, Plant 33, died January 18 at the age of 58. He had been with the Company since 1965, and he lived at 980 Brush Hollow Rd., Westbury.

ELTON F. BALCH died January 22 at the age of 52. He had been with Grumman four years and he worked in Plant 27 Fiberglass. He lived at 84 East St., R.D. 1, Middle Island.

Changes in N. Y. withholding

According to the Grumman Payroll Department, the special session of the 1971 New York State Legislature made changes in the Withholding Tax Law, incorporating the following:

1. A 2½% tax surcharge
2. A 15% tax bracket on taxable income in excess of $25,000
3. Eliminated the statutory credits of $12.50 and $25

Changes were also made to make the N.Y. State procedure conform to the Federal tax structure in that the new Federal "special withholding allowance" and the additional "exemptions" for large itemized deductions will be allowed in calculating New York State tax withholdings.

Inasmuch as your New York State exemptions are considered to be **identical** to your Federal exemptions you will need do nothing about your state exemptions if you have just made changes in Federal exemptions. Further, if you found no need to change your Federal exemptions, the above mentioned State withholding changes should bring the state tax withheld from your salary more in line with the amount due in **April 1973.**

The state tax tables, Method II, effective January 1, 1972, sent to you just recently, **are now obsolete.** Copies of the new tables will be made available as quickly as they can be printed and distributed. The new rates as changed by the N.Y. State Legislature will be used in calculating the pay check you receive on February 10, 1972.

Comparison of 1971-72 tax withholding

Weekly salary	Exemptions claimed: None 1971	None revised 1972	Four 1971	Four revised 1972
$125-130	$ 3.30	$ 4.40	$ 1.20	$ 2.10
170-180	5.60	6.90	3.00	4.00
270-280	11.70	13.30	8.00	9.40
370-380	19.80	23.40	15.10	18.00

The above figures are for comparison only and are not the exact amount which will be withheld since your salary may fall at the high or low end of the bracket shown. Bi-weekly paid employees may make a similar comparison by halving their bi-weekly salary and then doubling the amount of tax shown above.

They're celebrating. A passel of folks gathered in Capt. Bob Belter's office in Bethpage recently as he presented them with Government service awards. Morris Swartz received one for 40 years, while 30-year service award recipients were Angelo Bosco, Ralph Carusona, Charles DiMino, Lou Garglione, Otto Hauck, Jack Hopkins, John Imbriale, Joe Oakley, Bob Piatnick, Pete Sicardi, Seymour Solovay, Sol Soskin, John Tedeschi, and Alice Ynosencio.

Singles to open paddle play; start Bethpage tourney Feb. 22

Play is scheduled to get underway Monday, February 22, in the 28th annual table tennis tourney at Grumman, with competition set for plants at Bethpage, Calverton, Wyandanch, Syosset, and Garden City.

Entry deadline for both singles and doubles has been set for Friday, February 14, by tournament director Herb Mahoney of the Grumman Athletic Association. An entry registration form contained on this page should be submitted to GAA at Plant 28B, Bethpage.

Winners and runners-up from plants in the Bethpage area will advance to the all-Bethpage finals. Plant champions will compete for Class A titles in the inter-plant event, while runners-up will join in the B division playoffs.

Singles play will precede doubles competition this year and a double-elimination system will be used for the tournament. (An individual or team must lose two matches before being eliminated from the tourney.) Matches will consist of two-out-of-threes games in plant preliminaries, and three-out-of-five games in the finals of inter-plant competition.

For further information, call Herb Mahoney at Ext. 2133 or 2269.

Ski trips

Two ski trips are announced by GAA: to Manchester, N.H., February 4-6, at the Sheraton Wayfarer, by motor coach. Rates from $54.75 to $64.75, including skis and boots. To Lenox, Mass., March 3-5, at Holiday Inn. Rates from $52.75 to $62.75. Ski classes given Saturday and Sunday. Call GAA, Ext. 2133, for details.

Table Tennis Tourney

Entry Blank

Singles

Name .....

Plant ..... Dept. ..... Perm. No. .....

Days ..... Nights ..... Phone Ext. .....

Doubles

Partner's Name .....

Plant ..... Dept. ..... Perm. No. .....

Days ..... Nights ..... Phone Ext. .....

Entry Deadline Friday, February 14

(Forward to GAA Office, Plant 28B)

at your SERVICE

This is a free service to Grumman personnel for non-commercial advertisements, accepted on a first-come, first-served basis. Classified advertisements are carried in PLANE NEWS only on the basis that everyone replying to such advertising will receive fair and equal consideration regardless of their race, creed, color, or national origin.

Type or print ad on form available at Employees Service and Engineering counters, and send via interplant mail to PLANE NEWS, Plant 5, Bethpage. List home phone (with area code if outside Nassau or Suffolk). Limit: one ad per person per issue. No item under $10, no firearms or ammunition.

For Rent

HOUSE: Dingman's Ferry, Pa., 2 bdrm., 20 mi. Camelback ski area. LI 1-5177.

ROOM: Nr. Grumman, furn., pvt. bath & ent. WE 5-5012, after 6 p.m.

ROOM: Glen Cove, lrg. furn., pvt. bath, laundry & kit. priv.. gent. pref., $100/mo. 671-4083.

ROOM: East Meadow area, furn., gar. avail. PE 1-3703.

ROOM: Bethpage, furn., nr. plants, gent. pref., reason. 822-3819.

APT.: Babylon, new 3½ rm., in 2 fam. house, pvt. ent.. $225/mo. util. incl. 661-3524, after 3 p.m.

CONDOMINIUM: Liquillo Bch., Puerto Rico, 1 bdrm., slps. 6, 2 pools, tennis, golf near by, child. facil.. $31/day for 2, thru 5/1 -12/1, $3 ea. add. day, child under 12, free. 584 7252, after 6 p.m.

Wanted

GO-CART: W/wo eng. SU 1-1924.

FILE CAB.: Steel 1 dwr., approx. 18 in. lg. GE 3-9793.

OBOE: In gd. cond. 427-6778.

ROOMMATE: Male share spac. furn. apt. in Westbury w/2 N. J. commuters, sun deck, kit., liv. rm., TV, closet space, 15 min. Grumman, $20/wk. Ed Fischer, Ext. 2558.

ENG.: '56-'57 Chevy V-8, 265 c.i. GE 7-3740, after 6 p.m.

PLANER: 4 to 6 in. jointer. HA 7-4349.

FLOAT: & 100-125 lb. mushroom moor. anchor. AN 5-5676.

APT.: Hicksville or vic., 3 rm., newly-weds, bef. 4/7. 212 HO 8-5850.

APT.: 1 bdrm. or small house, Bethpage, nr. shop., apprx. 5/15. 822-6742.

Riders Wanted

BRONX: 176 St. & 3rd. Ave. to Plt. 2, 3, & 5, 11:30 p.m. to 8 a.m. M. Rivera, Ext. 3180.

Car Pool

LEVITTOWN: Wantagh Ave. vic. to Plt. 34 complex, 8-4:30 p.m., or occas. ride. Gene, Ext. 87512.

BRONX: Queens to Calverton. 212 298-0668.

PATCHOGUE: Sayville to Bethpage, join or form. 289-5258.

DOUGLASTON: Queens at L.I.E., commuters from Manhattan, Bklyn., Queens, Bronx, or N.J. to Calverton, 8-4:30 p.m. 212 478-6546.

HOLBROOK: To Plt. 30, 7:30-4 p.m. 585-7156.

WILLISTON PK., Mineola, Albertson & E. Williston, 7:18 - 3:38 or 7:30 shift, to Plts. 15, 21, 28, 3, 17, 37. 747-7942.

THROGS NECK: To Plt. 34 complex. 212 923-8509.

Ride Wanted

REGO PK.: Queens area to Plt. 5. 212 592-9508, after 6 p.m.

KEW GARDENS: Jamaica vic. to Plt. 3, 7:30-4 p.m. 793-0251.

For Sale

PONTIAC: '68 Firebird "400" conv., 4-spd., positract. 427-7735.

MERCURY: '63 Monterey, 4-dr., burgundy, blk. lea. int., 2-spd wipers & w/wash., R&H. all pwr. breezeway wind., new punc. seal tires & batt., snows on rims, $325. MO 9-2896.

For Sale

FORD: '70 Bronco, 4-whl. drive, 302 V-8, $2,550. 585-7799.

CORVETTE: '65, 4-spd., 327, 2 tps., blk., $1,800. 757-5881.

VW: '68 blue, Fastback, nds. muff., $1,250. 671-8708.

LINCOLN: '64 Continental, air cond., full pwr., blk. w/wh. lea. int., $550. 543-6547.

MISC.: '34 Ford Tudor, all orig., $1,500; '32 Plymouth, 4-dr. sed., driven daily, $900; '63 Chevy, 6 cyl., std., o'drive, $300. AN 5-4064.

PINTO: '71, air cond., side mold., radio, snows, yellow gold, $2,400. MY 4-5091, evgs.

YAMAHA: '71, 90 Enduro, 850 mi., under warr., $385. 581-3101.

TIRES: Snows, Goodyear, 2, 7.75x14, $10; 2, F78x14, $35; reg. tread F78x14, $10. 221-4440, evgs.

SNOWS: 8.15x15 Sears' XST, mtd. & bal., $45/pr. SU 5-6653.

BICYCLE: Boy's Swinger, blue, ram handlebars, banana seat. OV 1-7381.

TRICYCLE: 16 in., grn., ball bear. whls. Roger Thiele, Ext. 87573.

SKIS: Fischer Superglass, RSL's Molitor plastic boots, sz. 9½, 52 in. Scott poles, Salomon step-in bind., used 1 season, $245. 796-4019, evgs.

AIRCRAFT PROP.: For Piper Super Cruiser, PA 12 mono coupe. 212 776-1920.

PROPERTY: Waterfront, Lake Panamoka, 3 mi. Calverton plt., 55 ft. front., 170 ft. deep & 35 ft. pvt. bch., $5,100. SU 5-6653.

STA. WAG.: '63 Chevy, 9 pass., V-8, full pwr., $275. TU 8-5177.

CALENDAR of events

Notice of events for period Feb. 11 - Feb. 25 should reach Plane News by **Tues., Feb. 1.**

Am. Radio Club: Wed., Feb. 16, 5 p.m., WA2LQO shack on roof of Plt. 5. Emmett Goodman, Ext. 87125.

Chess Club: Tues., 5 p.m., Plt. 3 Cafe, tournament, games. Alex Ikonnikow, Ext. 7592.

Coin Club: Every Wed., 12:05 p.m., Plt. 25 Vendor Conf. Rms. Ken Hafe, Ext. 3395.

Ex-Servicemen's Club: Wed., Feb. 2, 7:30 p.m., Plt. 28 Audit., reg. month. mtg., vet's service avail. 2/10, Ext. 2814. Al Kordula, Ext. 87259.

Family Campers: Sun., Feb. 6, 5 p.m. Plt. 18, gen'l mtg. Bill Lord, Ext. 2914.

Flying Club: Fri., Feb. 11, 5 p.m., Plt. 28 Audit., reg. mtg. Stan Kalemaris, Ext. 7341.

Huntington Toastmasters Club: Mon., Jan. 31, 8-10 p.m., Allstate Bldg., 1st fl. conf., Old Country Rd. & 110, Melville. T. Campbell, Ext. 3157.

Ski Club: Wed., Feb. 2, 8 p.m., Holiday Manor, Hicksville Rd., Bethpage. Bill Flynn, Ext. 1823.

Soccer Club: Sun., Jan. 30, 12:30 p.m. Reserve team vs Patchogue @ Grumman; 2:30 p.m. Premier team vs Pt. Jefferson @ Grumman; Sun. Feb. 6, 12:30 p.m., Reserve team vs Huntington @ Grumman, 2:30 p.m., Premier team vs Mineola @ Grumman, league & cup competition. Karl Herrnkind, Ext. 3470.

Soc. of Aerospace Mat'ls. & Process Engineers (SAMPE): Tues., Feb. 8, 5:30 p.m., Kings Grant Motor Inn, Exit 46 L.I.E., spkr. E. Bishop, Hexcel, "Corrosion Resistant 2024 Alum. Honeycomb Core." S. Westerback, Ext. 2725.

Stamp Club (Bethpage): First 3 Wed. of ea. month, 5 p.m., Plt. 30 cafe, swap, circuit bks., sales, auctions, discussions. Marty Harow, Ext. 9171.

For Sale

VALIANT: '63 conv., $300. 277-9622.

TOYOTA: '69 Corona, 4-dr. sed., blue, auto., air cond., R&H, new tires, low mi. 473-1583, after 6 p.m.

MISC.: '64 Ford sta. wag., 8 cyl., auto., 43,000 orig. mi., wh., $450; '65 Buick sport wag., 8 cyl., auto., pwr. steer., bks., & wind., air cond., 42,000 orig. mi., $950. 587-8115, after 5 p.m.

VALIANT: '69, 2-dr. sed., grn., R&H, w/w, $1,300. FL 4-1050.

VEGA: '71 Hatchback, pwr. steer., air cond., AM, auto., belt. A78 tires, 2 D70 snows, full undercoat, bdy. side mldg., disc bks., 6,000 mi., sandalwood ext., $2,150. 935-3248.

JEEP: '60 Willys, util. wag., 4-whl. drive, new eng., Warn hubs. TU 4-3032.

DATSUN: '68 truck w/camper, mommomatic hd., sink w/pump, 15,000 mi., slps. 4. 822-6295.

MOTORCYCLE: '69 BSA, 750cc, ext. front end chromed, rear chop. mold. 3 in., cust. tank, seat bars. MO 7-8672.

TOY POODLE: 6 mo., wh., male, $85. 732-0354.

POODLES: Mini., apricot, all shots, AKC, reg., gd. w/child. MY 4-4381.

POODLES: Minis, 8 in & 14 in., apricot, AKC reg., male & fem., prized Sassafras bkgrnd., champ lineage. Roy Wesley, Ext. 3635.

POODLES: Minis, AKC, cream/wh./apricot, $50 & up. 732-3552.

HOUSE: Smithtown-Nesconset, 4 bdrm. col., 2½ bath, patio, all appli., fin. bsmt., 2 car gar., firepl., lndscpd., fenc., w-w, 2 yr., sell or rent w/opt. to buy. 212 591-2212.

HOUSE: N. Brentwood, 75x100, 3 bdrm. ranch, fin. bsmt., 15x30 pool, 12x28 jalousied porch, new. decor. alum. front, $8,000 take o'mtge. 231-7185.

HOUSE: Sayville, mother/daughter, all appli., 89x100, lndscpd., 2 car gar., fin. bsmt. 567-4291.

COTTAGE: Lakefront, Deposit, N.Y., ¾ acre on Blueberry Lake, access. all yr. round, new, $13,000. JU 1-8786.

FURN.: Wal. corn. tbl., round coffee tbl., 2 love seats, tangerine cush., $65. WE 5-8623, after 6 p.m.

DINETTE SET: Wh. wrought iron, 36 in. round tbl., 2 leaves, 4 chrs., reason. 724-8817, after 3 p.m.

MISC.: Hi-riser couch, 2 foam bolsters & cov., $60; grn. vinyl rocker recliner, $40; swivel chr., orange vinyl, $25. 735-3637, afte 6 p.m.

BABY FURN.: Lullaby wh. prov. canopy crib & match. dbl. dress. 669-9022.

TV: 24 in. blk. & wh. Magnavox cons., $100. FL 4-1053.

REFRIGERATOR: 14 cu. ft. Westinghouse, ask. $50. 666-4524.

FREEZER: 18 cu. ft. upright United, $100. 226-4223.

RADIO EQUIP.: Comp. heat fix. sta., mob sta. w/ Gonset conv. & Heat xmitter, RF/sig. gen. & sweep gen. by Eico, antique AC radio, make offers. 796-0617.

HI-FI EQUIP.: Auto. turntbl., dual 1212 w/Goldring elliptical stylus cart., wood base & plexi dust cov., 1½ yr., $60; manual turntbl. & arm, Lafayette PK 240, 4-spd. turntbl. w/Empire 98 arm, mtd. on wood base w/2 cart. hold., $25. 543-6589.

STEREO: Eico 3070 stereo preamp/pwr. amp. 70w IHF, 2 Utah full range bass reflex spkrs., $100. 212 BE 6-5549.

CAMERA EQUIP.: Mamiya G-33 twin lens reflex w/ 80mm f2.8 lens & 2 find.. $165; Pacemaker Crown Graphic 4x5 press camera & access., $175; Omega D-3 enlarger, 35mm to 4x5 sz. carriers & cold lgt., auto. focus. & Wollensak enlarg. lens. $250. 212 EV 6-9358.

CAMERA: Kodak Retina auto. III, German, f 2.8/45mm w/batt. flash Alpex deluxe, orig. cases, $80. 248-4486, after 7:30 p.m.

CAMERA: 35mm Honeywell Spotmatic, 55mm 1.8 Takumar lens, $140. PE 1-1839.

CAMERA: Auto. 35/reflex, Bell & Howell, blt. in meter, less than yr., $90. WE 5-1167, evgs.

CAMERA: Horizontal vac. bk., 14x18 in. Goertz lens w/scale F11 to F64, daystar arc lamp w23/x29½ in. frame & vac. pump, mod. 400 Vari-typer hdliner w/7 fonts. 226-8822.

ANTENNA: Winegard 82 ch. UHF, VHF, FM, SC-80U, used 2 mo., $20. 751-0698.

TYPEWRITER: Royal port., $25. WE 5-0885, evgs.

TYPEWRITER: Smith Corona port. w/hd. case, pica, ask. $55. 587-4413.

MISC.: 6 Britannica Bk. of the Yr., $12; 63 Nat'l. Geographics, $12; 8 boy's old bks., $10; priced catalog of coins & medals, 1862. CH 9-4557, after 4 p.m.

For Sale

ENCYCLOPEDIA: '71 World Bk., $165. 724-1469, after 6 p.m.

HAND SAW: Pwr., 6¼ in. Powerhouse. mod. 73102, 2 xtra blades, $12. MO 5-7904.

RADIATOR: Gas steam, 3 sect., 9,000 BTUH, 6 tube, dir. radiation, 25 sq. ft., 22 in. hi., $30. JU 6-6471.

TRAINS: 027 Lionel, locomotive, 5 asst. cars, couplers, track, transformer, best offer. 864-2226, after 6 p.m.

TRAINS: HO, 6 steam, 7 diesel engs., freight & pass. stock, some collect. item, bldgs., acces. & track. 929-4021.

MAG.: Playboy, Sept. '55 thru latet issue, best offer. 212 ES 6-2868, after 6 p.m.

MISC.: Port. Frigidaire dishwash., $20; Spd. Queen mangle iron, $20; set of bdrm. dress. & hd. bd., gray wal., $50. 931-5065.

MISC.: Ski rack, fits on trunk. holds 4 pr., $10; lady's buckle boots, sz. 5½ N, $10; men's lace boots, sz. 11M. 732-0695.

CAMPER: '66 VW pop tp., fully equip., dbl. bd., dinette, closet, sink, $1,200. JU 7-8955.

MISC.: Puritron air purifier, 1-2 in. micrometer; man's hockey skates, sz. 11; girl's 8 lb. bowl. ball; Rayette port, hair dry.; Zenith transoceanic port. radio; White sew. mach. wo/cons., $10/ea. MO 7-8350, after 6 p.m.

MISC.: Nomad Camelot hdtp. camper, slps. 6, dinette, used once, $700; '63 Trojan Sport Fisherman, flybridge, 2 bunks, hd., 21 ft. trlr., $1,750. HR 3-4622.

MISC.: '70 Honda, 450cc, blue, new rear tire, batt., tune-up, $700; ham equip, Eico 720 transmitter & Eico 730 modulator, both $70; many ama. equip. & parts. 363-9506, days.

TRANSMISSION: Borg Warner super T-10, 4-spd. 543-6923.

CAR TP. CARRIER: Waterproof, home made, lgt. wgt., approx. 16 cu. ft., fits low on car roof, adj. to fit most cars, $35. TU 8-5548.

PARTS: '64 VW, fend., trunk cov., rear bump., shocks, drs., dist., carb., spd-o-meter, other items, reason. 921-2949.

TIRE: 1, w/w, 800-14, $10. WE 5-0885, evgs.

TIRES & RIMS: Two 710x14 tubeless; 15 in. Dodge rim; 5 in. Ford rim, best offer or swamp. OV 1-7248.

SNOWS: 2, 8.25x14 Firestone deluxe champ. tubeless, wh. stripe, mtd. on '65 Buick Spec. whls., $30. 543-6987.

MISC.: Stereo tape deck, AKAI, X2905, $350; VW car radio, $10. 727-7831.

BOAT: 15 ft. plywood w/trlr. & access., $175. 585-8359.

CHRIS CRAFT: 33 ft. sed.. flybridge, dinghy, davits, comp. refin. & rechromed last season, less than 300 hr. on engs., extra, $6,800. NA 8-2423, after 5:30 p.m.

OUTBD.: '68 Grady White, fbgl., cruier, slps. 2, 100 hp Merc. elec. start., Navy tp., curt., hd., stainless steel bow, rail, comp. equip. 277-3494.

RADIO CTRL. UNIT.: O.S. Digitron, 4 channel dig. proport. sys., mod. DP-4P, new, $250. MO 1-6235.

HAM EQUIP.: Clegg Venus 6 meter SSB transceiver w/match. pwr. supply/spk., $150. 864-4671, after 6 p.m.

BOAT: '67, 16 ft. Winner, fbgl., '67, 65 hp Merc, full canv., fully equip., rdy. to go, xtras, ask. $1,395; '70 Tee Nee trlr., $1,400. 732-1656.

POOL TBL.: Reg. sz., sticks & balls, $75. 938-6140.

SAILBOAT: 18 ft .sloop w/cab., slps. 2, inbd. eng., hd., trlr., comp. o'haul. in '70, $1,675. 543-0044, after 6 p.m.

MISC.: 16 ft. runabout Trojan, 75 hp elec. motor; trlr.; dinette set w/buffet. china, oval tbl. w/4 chrs.; well pump; ama. radio sta., fix & mobile. 796-0617, evgs.

ORGAN SPKR.: Leslie, mod. 147 comp., $350. 212 TA 3-9885.

KIT. SET: Blk. & yel., 4 chrs., $25. MO 9-1882.

MISC.: Cust. gun cab., knotty pine, horiz. mts., gl. drs., $95; ¼ in. elec. drill, var. spd., $15; elec. roaster, $10; Mixmaster w/juicer, $20; Rotobroil rotisserie, $35. 757-2141.

CARR.: Coach, Bilt-rite, navy blue, Park ave. 669-9022.

SEW. MACH.: Zig zag, in cab., all attach., $30. 473-8480.

SAXOPHONE: B-flat straight soprano, gold plated, mouth pc., $100. FR 9-7743, after 5 p.m.

TEXT BKS.: Sociology by Broom & Selsnick; Readings in Sociology by Cuber & Harroff. 271-3208, after 5:30.

For Sale

BOAT: '65, 14 ft. fbgl., 33 hp Evinrude, '68 trlr., xtras, LI 1-6152, after 5 p.m.

CADILLAC: '70 Coupe de Ville, full pwr., air cond., under 10,000 mi. 751-2292.

VW: '64 bus, $350. 587-6365 before 2 p.m.

FORD: '66 Cust. 500, 4-dr., auto., nds. eng., $30. 799-6409.

RAMBLER: '66 American 220, std., $250. SU 1-5730.

VW: '68 red Bug, low mi., 4 new tires, cust. steer. whl., xtras, $1,100. PY 6-7916, after 6 p.m.

JAGUAR: '58, 3.4 sed., wh., red lea., 4-spd. stick, o'drive, new rubber & muff., ask. $775. HA 7-5536.

MISC.: 4 lug 15 in. VW whls., $12/pr.; 4 lug 13 in Ford; Airalift air bags for Ford w/leaf spgs., $15/pr. 799-1602.

RIMS: Mtd. for '66 VW, $10. WE 8-7661, evgs.

HOUSE: Sayville, 3 bdrm. ranch, den, gar., fin. bsmt., 1½ bath, 2 patios, ¼ acre, 5¼% mtge., $31,000. 589-5889.

MISC.: House, N. Palm Bch., Fla., access. to ocean, 3 bdrm., din. rm. or 4th bdrm., fam. rm., air cond., 2 car gar., low 40s; Royal typewriter, $25. 586-8971.

TRAVEL TRLR.: '68 Fan, 19 ft., rear bath w/shower, slps. 6, demand water sys., scrn. in rm., spare tire & whls., TV ant., $2,350. SU 1-2417.

BUSTER: '70, gold, big 6 cyl., 2-dr., air cond., auto., pwr. steer., new tires & snows, orig. owner, 22,000 mi., $1,600. 212 LR 5-8536.

CHEVELLE: '71 SS 454, lace paint on hood & trunk, Gragar mags, turbo hydramatic, 400 w/work, slight eng. work, still stock class, xtras, $3,200. TU 8-8794.

MOTORCYCLE: '69 Kawaski, 650cc, 8 in. ext. front end, cust. tank, & seat, ridget fram, hi bars & sissy bar, 2 helmets, xtras. 732-4767.

CORVAIR: '66, orig. owner ask. $400. 796-7748.

PORSCHE: '62, S-90 conv., 2 tps., AM/FM, radial tires, $1,500. WE 5-2825.

VW: '69 Bug, drk. blue, 7 tires. MA 1-3763.

FORD: '66 LTD, spare rim, snows w/chains, 65,000 mi., $625. WA 1-1549.

OLDSMOBILE: '70 Delta 88, 4-dr. hdtp., lgt. blue vinyl tp., air cond., pwr. steer. & bks., 3-spd. auto., snows, 12,500 mi., $3,000. AN 1-2952.

HOUSE: Stony Brook/Strathmore, 5 sect., 3 bdrm. ranch, 2 bath, wood. 1/3 acre, w-w, appli., patio, slate foyer, panel., 2 car gar., xtras, $32,500. 751-2354.

MOBILE HOME: 12x60, 3 bdm., 1½ bath, w-w, furn., skirted. 665-6962, bet. 5-8 p.m.

BDRM. SET: 8 pc., 2 bds., desk & chr., hutch, dresser mirror, ngt. tbl., all w/slate tps., $299. 472-0432.

HOUSE: Pt. Jeff. Vill., 3 bdrm. cust. col. cape, 1/3 wood acre, liv. rm. w/fieldstone firepl., formal din. rm., eat-in-kit. w/dishwash., scrn. porch, full bsmt., w-w, s-s, 220v/100 amp, o.h.w., xtras, $650 tax., $39,900. HR 3-3232.

HOUSE: 3 bdrm. ranch, wood. plot, fully lndscpd.. din. rm., den, eat-in-kit., full bsmt., att. gar., fenc. in pool w/deck, xtras, $30,000. 666-8634.

DODGE: '70 Challenger, 318 V-8, pwr. steer. & disc bks., sure grip, air cond., new tires & snows, $2,195. 883-9000.

GAR. DR.: 4 sect. o'head, 1 sect. gl., 9 ft. wide, all parts incl., $25. A. Pomponio, Ext. 1720.

TV ANT.: Ch. Mast. 1251, UHF/VHF/FM color vector, new, $42.50. 543-2423, after 6 p.m.

WOOD VISE: Columbian, 4x10 in. jaw w/20 in. cap., $25. LT 9-5019.

CAB.: Mahog. credenza, AM-FM radio, 2 spkrs., space for 17 in. TV, bar & record changer, 43x23x 52, $25. MA 1-9171.

POODLES.: Mini, AKC, blk. males, whelp. 11/19/71, $50 & $100. 728-3163.

MISC.: 4 pc. blue sect.; pole lamp; cocktail tbl.; baby carr.; Magic Chef oven; contemp. bar; kit. cab., best offer. 587-3877.

MISC.: Bowl. balls, Ebonite Gyro, 16 lbs.; 1 Tracmaster, 16 lbs., both drill. for semifinger grip, $15/ both; 25 lb. pull Bearcat target bow, arrows, $20. TU 8-0244, after 6 p.m.

BABY CARR.: Bilt-rite & child's mirror. 732-4767.

VW: '71 Super Beetle, auto., radio, snows. 421-5984, after 6 p.m.

MOTORCYCLE: '71 Husqvarna, 250, moto-cross, never raced, under 10 hrs., $950. WA 1-0586, evgs.

STARCRAFT: '70 Starmaster 6, slps. 6, Surge bks., awn., wired 110v or 12v, spare, bicycle rack, $1,100. 798-1985, after 6 p.m.

PARTS: 4-bbl. manifold & carb for 215 c.i. Buick, Olds or Pontiac eng., $10. JU 5-8992.

For Sale

MISC.: '69 Cougar, low mi., $2,195; '68 Lincoln, low mi., $2,295, sell either. 767-0852.

HOUSE: Pt. Jeff. vill., 6 rm. cust. cape, ¼ acre, 3 bdrm., din. rm., 2 bath, walk to stores & harbor, xtras, mid. 30s. 473-5592.

PROPERTY: S .Vermont, 1 acre, on Rte. 8, opp. Dutch Hill ski area, Alpenwald develop., recreat. area, yr. round swim. pool, sauna, ctrl. locat. sev. ski areas (incl. Mt. Snow). HA 7-7344.

WIND.: Jalousie w/scrns. & storms, 59 hi., 2, 21 in. wide; 2, 23 in.; 1, 27 in.; 2, 29 in. F. Sleischhauer, Ext. 86540.

MISC.: Light meter, G.E., $12; pacer rock. horse, $12. MO 9-1650.

OPEL KADETT: '70 sed., auto., $1,250. 665-2990.

PONTIAC: '63 Catalina, auto., 2-dr., 8 cyl., nds. work, $150. 543-1565.

OLDSMOBILE: '62, running, nds. minor repairs, good for parts, $75 or make offer. 667-8568, after 5 p.m.

HONDA: '70, 350cc, under 1,400 mi. 744-6040, after 8 p.m.

TRAVEL TRLR.: 21 ft tandem axle, slps. 8, G.E. refrig., 12/120v sys., heat., shower, dbl. sink, comp. self cont., vinyl awn., xtras, $3,000. J. Fletcher, Ext. 9925.

HOUSE: Stony Brook, 3 bdrm., 2 bath, ranch, s. sec., corn. plot, dbl. gar., s-s, firepl., air cond., all appli., lndscpd., fam. rm., ldry., o.h.w., no brokers. HA 7-3084.

HOUSE: Freeport, 3 bdrm. hi-ranch, waterfront, play rm., gar., 2 bath, porch; also, studio apt for rent. 223-0156.

HOUSE: Centereach, 3 bdrm. split, lrg. liv. rm., din. rm.. eat-in-kit., panel. den, mud rm., bsmt., s-s, w-w, o.h.w., 75x125, $29,000. JU 8-2590, after 5 p.m.

PING PONG TBL.: Prof. sz., fold & roll away, $25. 661-3770.

CHEVROLET: '70 Malibu, drk. grn., 8 cyl., auto., pwr. steer., vinyl tp., cons., bkt. seats, 23,000 mi., ask. $2,150. JU 1-2954.

FURNISHINGS: Entire contents of house, Early American, din. rm. set, liv. rm. & 3 bdrms., 6 mo. 541-2076, after 6 p.m.

NOVA: '69, 4 cyl., auto., new bks., 2 new snows & rims. 433-3119, after 5 p.m.

TOW TRUCK: '66 Chevy, series 20, ¾ ton, 327, V-8, 4-bbl, 4-spd., trans. w/spare trans, Weld-bilt boom, $1,800. 378-0855.

ENG.: '63 VW, 40 hp, comp. & rebit., $160 install. 273-6239.

HOUSE: Massapequa, leg. 2 fam./mother-daughter, 3 bdrm. up, 2 add. bdrm. apt. down, sep. ent., bath & kit., all brick, firepl., 100x100 corner plot, fully lndscpd., $200/mo rental, 6% mtge. take-over avail., $36,000. 799-8788.

FURN.: Medit. velvet sofa, chrs., $400; comp. mod. bdrm. set, $350; set of 3 bkcases, adj. shelve, display area, wal.; formica dinette set, $30; air cond., Fedder, 12,000 BTU; child. furn., chests, Bilt-rite blue coach, play pen, etc. 212 TW 7-5784.

MISC.: Speed read. mach., $75; car rack; human hair pageboy fall, $20. Ch 9-9344.

EXPER. SET: Electronic, Heathkit deluxe transistor set w/self-teach. lesson guides. $15. 751-1256.

plane GRUMMAN news

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Business jet. Gulfstream II, one of a pair belonging to The Coca-Cola Company, is shown flying over San Francisco. Many of Grumman's fanjet aircraft are in corporate service and have completed trips across six continents, demonstrating both transoceanic capability and short-field performance. It climbs to 40,000 feet in 15 minutes, can fly non-stop, New York to London.

Vogeley—'We've turned the corner; we're on the upswing'

"We've turned the corner; we're on the upswing," Chuck Vogeley, Vice President - Commercial Aircraft Sales, noted last week in a conversation about Grumman's Gulfstream II fanjet. In spite of a hesitant economy nationally, sales of the Gulfstream II have been increasing, Vogeley pointed out, "and our sales projection for 1972 calls for 15 aircraft—or beyond that, if military versions develop."

The enthusiasm of Gulfstream owners and the pilots who fly the Gulfstream II used to be a kind of cozy conspiracy between themselves and Grumman, but of late this enthusiasm has spilled over into Grumman's new Gulfstream II advertising program. Xerox Corporation, one of Grumman's newest customers for the $4 million fanjet, has permitted a picture of its new Gulfstream II to be featured in a full-page Forbes Magazine ad with this heading: "The new Xerox business machine. It doesn't copy anything and nothing can copy it."

This is followed by: "Xerox is meticulous about the quality of its products in the fields of education, business equipment, and computers. They are just as meticulous about the quality of the aircraft they buy. Xerox has just taken delivery on the one hundredth Gulfstream II made by Grumman. It has long been our contention that the one characteristic shared by all corporations who own Gulfstreams is progressive management. . . . Only a Gulfstream offers the features of range, speed, comfort, and utility that make this fan jet such a dynamic sales tool. . . ."

'Magnificent airplane'

Last year Kaiser Industries gave Plane News permission to quote their enthusiastic manager of aviation, Ron Guerra, after Kaiser executives had completed a round-the-world 100-day trip by Gulfstream II. "We flew one of ours (Number 17) constantly for 100 days nearly all over the world, into and out of all kinds of airports, with no problems," Guerra said. (The trip covered 283 hours' flight time and 127,245 miles.) "It's a magnificent airplane. A tiger," asserted Guerra.

Kaiser owns two Gulfstream IIs and its partner companies in Australia have two Gulfstream Is.

Under an international marketing program, Grumman has expanded aggressively into the foreign market. Aircraft Number 93 was purchased by the President of the African Republic of Cameroun. Number 95 has been delivered to Broken Hill Proprietary, Ltd., in Australia, and Number 97 is now operating for VIP-Air, an Italian firm. Grumman International handles military and governmental sales abroad.

Industrial studies

One service Gulfstream II Marketing has developed in depth to aid prospective customers is the preparation of industrial studies—mining and petroleum, department store chain operations, nation-wide insurance companies, for example—as a frame of reference for the prospect's own operation.

The rest of the Gulfstream marketing program is highly personalized, and made helpful to prospective buyers in showing where, exactly, they can profit from investment in this time-saving intercontinental aircraft, "the world's fastest corporate jet," says Vogeley. (Gulfstream II has a range of 3,800 miles and can thus fly non-stop to Europe. Its 590-mile-per-hour cruising speed means that Miami is only two hours away from New York, and Mexico City a three-hour hop from Chicago. The plane is self-contained—it has its own boarding stair and independent starting system—and is therefore virtually independent of airport service.

"Grumman has discontinued selling Gulfstream IIs through distributors, relying rather on internal sales techniques and aggressive marketing to sell the Gulfstream II. Page Airways Inc., of Rochester, N. Y., is our sole dealer, and we work closely with them."

Another big selling point for the corporate fanjet is the 24-hour service customers are provided at Grumman's Plant 55 in Savannah, Ga., where the Gulfstream II is manufactured. Al Lemlein, Plant 55 general manager, adds that Savannah is rehiring some of its experienced production people. "This healthy condition is a tribute to manufacturing, sales and service personnel—and to the aircraft they're associated with," says Lemlein.

"In passing, it should be pointed out that the soundness of engineering that has made Gulfstream II outstanding in the executive transport field has also contributed to advances in military and space programs," Vogeley said. "Wing development for efficient and high-speed cruise and loiter conditions is an example. Other advances include high maneuverability and gentle stall characteristics, coupled with modest takeoff requirements; or the use of numerical control procedures in wind tunnel models and a computerized maintenance system. Gulfstream II is of benefit to the space and defense programs; and their requirements also lead to constant improvements that are passed along to civilian operators.

G II 'spinoffs'

Examples of such developments:

- A proposal to the Navy to develop a Gulfstream II as an F-14 weapons systems trainer, based on the satisfactory results of the TC-4C trainer (a derivative of Gulfstream I). Grumman is also studying, for NASA Ames, on a North American Rockwell contract, a VTOL (Vertical Takeoff and Landing) lift-fan version of the Gulfstream II.
- Grumman studies also show that a near-sonic transport based on the Gulfstream II design could demonstrate for NASA Langley the new Whitcomb supercritical wing that will allow speeds to .98 Mach number at reasonable fuel economies while avoiding sonic boom.
- In December the National Aeronautics and Space Administration awarded Grumman a $1.5 million fixed-price, six-month contract, with Boeing, for a QUESTOL (Quiet Experimental Short Takeoff and Landing) Program, using a four-engine Gulfstream II in a high-wing configuration with externally blown flaps.

"All this," says Vogeley, "adds up to a promising future for Gulfstream II sales, both domestically and internationally. No aircraft of its size can give us any competition in the near future."

Chart room. Each Gulfstream II prospective purchaser has a place on the record board, here being brought current by Ronnie Leschik, secretary. Grumman has strong sales and marketing program. (Photo by Jim Wagner)